Studies on Biocatalyses. (XV) : On the Distribution and Chemical Form of Boron in Plant

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To the mushed paste of Oyster was added 0.5 n salt solution. After standing for 3 hrs. at 0 °C, it was pressed and the extracted liquor was filtered. To the clear filtrate ammon. sulfate were added and globulin and albumin precipitated and then were filtered. The boron content in the proteins and the filtrate were determined respectively. From the result of analysis, it was found that the boron content in proteins was very small or as little as trace and the greater part was found in the filtrate, the mucoidal part.

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On the Distribution and Chemical Form of Boron in Plant.

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Of various plant products boron is rich in the vegetables which contains abundant pectinous matter and mudh richer in various pulpy fruits. For example, as seen in our results, potato 27.7, sweet potato 50.3, radish 70.7, turnip 161.2, carrot 165.0, persimmon (Jiro) 91.8, mandarin 185.4 and apple 200.4, where each numeral represents mg B per Kg dry matter.

In the next experiment, we have analysed the amount of boron in orange peel. After extracting orange peel with hot water, the pressed cake was again extracted with 0.5 % ammon. oxalate to press out the fibrous residue 58 % of total B were found in the aqueous extract (1), 15 % in the extract of ammon. oxalate (2) and 27 % in the pressed cake (3). Tee boron content in the dry matter of (1) was 188 mg, in (2) 104 mg and in (3) 173 mg, each per kg dry matter respectively.

In the aqueous extract it seems boron occurs as boric acid or its ester in soluble state, while in ammon. pectate and in the cake it combines tightly in insoluble form.